

Notes on Zygoptera (Odonata) from Maryland, with a Description of *Enallagma pallidum*, n. sp.

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During the summer of 1922 I visited various bodies of water in eastern Maryland in the course of a study of the breeding places of Anopheline mosquitoes. Finding that I had some spare time at my disposal, I turned my attention to the Odonata, but since my time was limited, I was forced to neglect the larger, swift-flying dragonflies to a considerable extent, and spend most of my time in collecting the Zygoptera or damselflies. The records listed in this paper are fragmentary, extending over only a part of the season and including only a few visits to each locality, but even so they are of considerable interest, especially since comparatively little has been published on the Odonata of Maryland.

From the physiographic standpoint, the localities where collections were made can be conveniently classified as follows:

1. Small, rapid streams.

Gwynn's Falls—a small stream just west of Baltimore, running through Hillsdale and Windsor Hills before entering the city itself. Visited May 30, June 23, 29, July 5, 10, Aug. 1, 16, 22, 30, Sept. 5, 9, Oct. 6, 24.

Herring Run—a small stream north-east of Baltimore running through an area reserved as a park. Visited July 21.

Small Streams with a similar fauna were also incidentally noted at Glenburnie, Homewood, Lake Roland and Ten Hills.

2. Sphagnum bogs.

Beltsville—the Powdermill Bogs, about two miles west of Beltsville, between Baltimore and Washington. Visited June 10.

Glenburnie—a pitcher-plant bog near the town, on the Annapolis Short Line, between Baltimore and Annapolis. Visited June 22.

3. Small, artificial ponds.

Homewood—several small ponds on the grounds of the Johns Hopkins University. Visited July 3, Aug. 9.

Hillsdale—north-west of Baltimore. A small pond resulting from the disuse of an old mill-race. Visited June 23, July 5, 10.

Columbia Ave.—several small ponds in a disused brick-yard in south-west Baltimore. Visited June 12, July 15.

4. Large ponds and lakes (mostly artificial).

Glenburnie—a large boggy pond formed by the damming of Sawmill Creek. About one mile north-east of the sphagnum bog already mentioned. Visited Aug. 4.

Ten Hills—a large pond about four miles west of Baltimore. Formed by damming a branch of Dead Run. July 24.

Lake Roland—a large lake, a reservoir of the water-supply system, about four miles north of Baltimore. July 13, 17.

Salisbury—in Wicomico County, on the Eastern Shore. Collecting was done at three mill-ponds north and north-east of the town, formed by damming the Wicomico River. Visited June 15, July 26, 27.

5. Brackish water ponds and bays.

Sparrows Point—seven miles south-east of Baltimore. Collections made in a bay of Jones Creek. July 6, 7.

Magothy River—Collections were made along the shore of the river near its mouth and in a large brackish pond connected with the river. The locality is about five miles north of Annapolis. July 31, Aug. 15, 21, 29. Sept. 4.

The following list gives the species of damselfies which were encountered, followed by the description of a new species.

AGRION MACULATUM Beauvais.—Common at all small streams visited between June 23 and Oct. 24.

HETAERINA AMERICANA Fabr.—First seen at Herring Run, July 21. Common at Ten Hills, July 24, and at Gwynn's Falls from July 29 to Oct. 24.

LESTES FORCIPATUS Ramb.—Homewood, Aug. 20, several specimens.

LESTES RECTANGULARIS Say.—Found near all small ponds from June 12 to Aug. 9.

LESTES VIGILAX Hagen.—Salisbury, July 27, one male.

ARGIA APICALIS Say.—Common about small streams (Gwynn's Falls, Herring Run, Ten Hills) and large ponds (Salisbury, Ten Hills, Lake Roland) on all visits between June 15 and Sept. 9.

ARGIA BIPUNCTULATA Hagen.—Common at sphagnum bogs (Beltsville, Glenburnie).

ARGIA MOESTA PUTRIDA Hagen.—Fairly common along small streams on all visits between June 29 and Oct. 24.

ARGIA SEDULA Hagen.—Common along Gwynn's Falls, June 23 to Sept. 9.

ARGIA TRANSLATA Hagen.—Not rare at Lake Roland, July 13 and 17.

ARGIA VIOLACEA Hagen.—Next to *Ischnura verticalis*, the most widely-distributed damselfly in this area. Found along small streams (Gwynn's Falls, Herring Run, etc.), small ponds (Homewood, Hillsdale), large ponds (Salisbury, Ten Hills, Lake Roland) and even near brackish water (Magothy River) from June 15 to Oct. 24.

ENALLAGMA ASPERSUM Hagen.—At small ponds, Homewood, July 3, Aug. 9, and Hillsdale, July 10.

ENALLAGMA CIVILE Hagen.—Large ponds, Salisbury, June 15, and Ten Hills, July 24.

ENALLAGMA DURUM Hagen.—Very common about brackish water on all visits.

ENALLAGMA EXSULANS Hagen.—Common along small streams on all visits between May 30 and Sept. 9.

ENALLAGMA GEMINATUM Kellicott.—Common about large ponds at Glenburnie (Aug. 4) and Salisbury (June 15, July 26-27).

ENALLAGMA HAGANI Walsh.—Small pond, Hillsdale, June 23, one male.

ENALLAGMA PALLIDUM new species.—Salisbury, July 26, one pair in copula and one male.

ENALLAGMA VESPERUM Calvert.—Salisbury, July 26-27, several specimens.

ENALLAGMA SIGNATUM Hagen.—Salisbury, June 15, July 26-27, Sparrows Point, July 6-7, and Magothy River, all visits.

ENALLAGMA TRAVIATUM Selys.—Not uncommon, Salisbury, June 15, July 26-27.

TELAGRION DAECKII Calvert.—One male, Salisbury, July 26.

NEHALENNIA GRACILIS Morse.—Sphagnum bog at Glenburnie, June 22, fairly common.

AMPHIAGRION SAUCIUM Burm.—Common at sphagnum bogs (Glenburnie, June 23 and Beltsville, June 10).

ISCHNURA POSITA Hagen.—Homewood, Aug. 9. Common at large ponds at Glenburnie, Aug. 4, and Salisbury, June 15, July 26-27.

ISCHNURA RAMBURI Selys.—Common at Magothy River on all visits.

ISCHNURA VERTICALIS Say.—Common about all small streams, small ponds, and large ponds from June 15 to Sept. 9.

Enallagma pallidum new species.

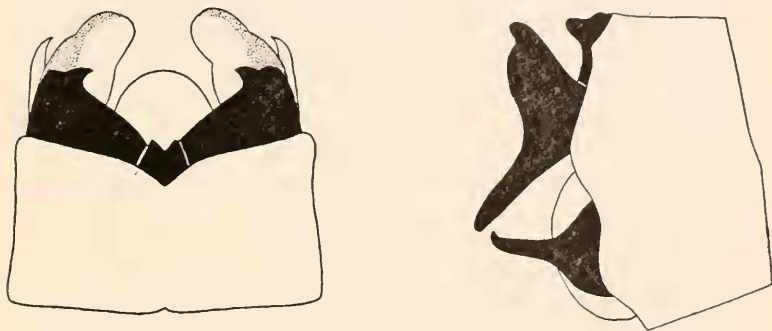
♂.—Pale blue with black as follows: a mid-basal dot on the labrum, a basal band connected with two spots laterally on the nasus, a short transverse isolated stripe a short distance ventral to the median ocellus, which the blue attains, and most of the vertex, leaving the following pale blue spots: two large post-ocular spots, a transverse bar along the posterior margin (not or barely connected with post-ocular spots), two small triangular spots between the median ocellus and the two lateral ones (in one male these two spots are connected with each other and with a small oblong spot between the two lateral ocelli), and two slightly larger triangular spots just external to the lateral ocelli. Second antennal segment black with a bluish spot on ventral surface.

A pair of curved black stripes, connected with a transverse band along posterior margin, on middle lobe of prothorax, an oblong spot dorsally on each lateral lobe. Mid-dorsal thoracic stripe divided into three narrow black stripes by two narrow pale blue areas; none of these three black stripes wider than one-sixth of the width of a mesepisternum.

Humeral stripe distinct above, ending in a fork on dorsal margin of mesinfraepisternum below, narrow and somewhat indistinct between and having adjacent to it a circular black spot on the anteroinferior angle of the mesepimeron. A short black line at upper end of each lateral thoracic suture.

Abdominal segments 1 to 7 black dorsally, except that the posterior margin of 1 is pale blue, the black on 2 is shaped like a spear-head pointing anteriorly, and there are interrupted pale blue basal bands on 3 to 7. Segments 8, 9 and 10 are all pale blue, except for very narrow transverse black lines at base of 8 and at base and apex of 10.

Superior appendages dark brown. Viewed from above, the upper branches are slightly divergent, the lower branches convergent. Upper branch short and stout, with large ante-apical tooth. Lower branch broad and blade-like, thickened externally and thin internally. Viewed



Dorsal and right lateral views of the male appendages of *Enallagma pallidum* n. sp.
Camera lucida outlines.

in profile, upper and lower branches appear about equal in length, upper branch stout with a notch just below tip, lower branch slender. Inferior appendages slightly shorter than superiors, slender, almost straight, with a small hook at tip (see text-figures).

Wings hyaline, pterostigma brownish, light-bordered, surmounting less than one cell. Costal margin longest, proximal shortest, distal shorter than posterior. Arculus distal to second antecubital at a distance shorter than the length of the upper limb of the arculus, its limbs sub-equal. Upper side of quadrilateral about one-half of lower side in fore wings, more than one-half of lower side in hind wings. Inferior sector of triangle arises very slightly in front of submedian crossvein (at a distance shorter than the length of the crossvein itself) and ends at about the level of origin of the nodal sector. Superior sector of triangle ends between levels of origin of nodal and ultranodal sectors. Submedian crossvein between first and second antecubitals, nearer to second. fore wings with about nine postcubitals, hind wings with about eight.

The nodal sector arises nearest the fifth postcubital in fore wings (fourth in one wing out of four) and nearest the fourth in all hind wings. Ultranodal sector arises two cells proximal to the inner brace vein of the pterostigma in fore wings and one cell proximal in hind wings. Three antenodal cells in both wings.

Dimensions—abdomen 26 mm., hind wing 17 mm.

♀.—Pale greenish blue and black. Markings as in the male, except that the humeral stripe is ill-defined and reddish brown, there is a brown line on the entire length of the second lateral thoracic suture, and the anterior two-thirds of abdominal segment 8 has a wide dorsal stripe of black, fully four-fifths as wide as the segment in dorsal view. There is a narrow transverse basal brown stripe on 9, interrupted mid-dorsally, but no dark line at apex of 10.

Wings as in the male, but the pterostigma is decidedly paler and has the distal margin sub-equal to posterior.

Dimensions—abdomen 26 mm., hind wing 18 mm.

This species differs from *E. traviatum* by its three, narrow, mid-dorsal thoracic black stripes, by the male having the lower branch of the superior appendages sub-equal to the upper branch in profile view, abdominal segment 10 pale blue, etc.

From *E. antennatum*, whose male appendages are similar in profile view, it differs by having abdominal segments 8 to 10 almost entirely pale blue, by its narrower black thoracic stripes, etc.

One male and one pair in copula of this species were taken on July 26 at the large mill-pond of the Electric Light and Power Co. north of Salisbury, Maryland. The exact locality was a small cove, on the east side of the pond, just north of the railroad trestle which crosses it. At first sight, the slender form and pale blue color of the specimens reminded me of *Telagrion dacckii*, of which I had just taken a fine male at a neighboring pond. When I came to actually compare the two, however, the smaller size and the shape of the male appendages showed at once that they were distinct. Later, being unable to identify the specimens myself, I sent one of the males to Dr. P. P. Calvert, who informed me that it was a new species of *Enallagma*, most closely related, apparently, to *E. traviatum* Selys. I wish here to express my very great indebtedness to Dr. Calvert for his kindness in giving me this information.

I have requested Dr. Calvert to deposit the *type male* and *allotype female* of this species in the collection of the Philadelphia Academy of Natural Sciences. The other male is retained in my own collection.